Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim 1 (currently amended): A process for manufacturing a composite material comprising:

selecting a resin which is solid or semi-solid at ambient temperatures;

heating the resin to a temperature where the resin is in a liquid or viscous liquid state;

obtaining one or more filament bands, said one or more filament bands being comprised of a plurality of fibers and being at least about 0.5 inches wide;

impregnating said filament bands in said resin while said resin is in a liquid or viscous liquid state;

winding at least one filament band onto a rotating mandrel through successive winding passes sufficient to form a composite material; wherein each successive winding pass winds the at least one filament band alternatingly in first and second opposing directions; [[and]] wherein the at least one filament band is wound onto the rotating mandrel at least at two distinct, user-defined winding angles within at least one of the winding passes; wherein the at least one filament band is laid out on the mandrel at a first angle during an initial winding pass, is changed to a second angle during at least one central winding pass, and is returned back to the first angle during a subsequent winding pass; and wherein the resin provides tack that allows a previously laid section of the at least one filament band to maintain the angle in which the at least one filament band was placed on the mandrel and prevent the previously laid section of the at least one filament band from conforming to a new angle of the filament band when the angle is abruptly changed;

forming a composite material that includes the at least one filament band and resin; and

applying multiple layers of the composite material in differing orientations, at different locations, and in varying numbers of layers across the length of the mandrel during a single winding process; wherein the differing orientations, different locations, and varying numbers of layers are selected based upon determined load requirements of the composite material.

Claim 2 (withdrawn)

Claim 3 (canceled)

Claim 4 (previously presented): The process, as recited in claim 1, wherein the angle of the at least one filament band relative to the mandrel is controlled by a filament application section of a filament winding machine.

Claim 5 (original): The process, as recited in claim 4, wherein the application section impregnates the filament bands with the resin.

Claim 6 (previously presented): The process, as recited in claim 1, wherein the successive winding passes of the at least one filament band a plurality of overlapping locations.

Claim 7 (original): The process, as recited in claim 6, wherein an effective amount of resin is present in the overlapping locations.

Claim 8 (previously presented): The process, as recited in claim 2, wherein the tack of the at least one filament band is sufficiently adhesive to maintain the at least one filament band on the mandrel at the distinct user-defined winding angles.

Claim 9 (currently amended): A process for manufacturing a composite component comprising:

determining load requirement for the component;

identifying the number of layers and orientation of filament bands to meet load requirements for the component;

creating a manufacturing control plan;

selecting a resin which is solid or semi-solid at ambient temperatures;

heating the resin to a temperature where the resin is in a liquid or viscous liquid state;

obtaining one or more filament bands, said one or more filament bands being comprised of a plurality of fibers and being at least about 0.5 inches wide;

impregnating said filament bands with said resin while said resin is in a liquid or viscous liquid state;

winding at least one filament band onto a rotating mandrel through successive winding passes; wherein the at least one filament band is wound onto the rotating mandrel at least at two distinct winding angles within at least one of the winding passes; [[and]] wherein the at least one filament band is wound according to the manufacturing control plan, such that the number of successive winding passes and the angles of the filament bands relative to the mandrel in each winding pass create a pre-form for the component; wherein the at least one filament band includes at least one strait section without crimping sections that is at least three times longer than the width of the at least one filament band; wherein the at least one filament band is laid out on the mandrel at a first angle during an initial winding pass, is changed to a second angle during at least one central winding pass, and is returned back to the first angle during a subsequent winding pass; and wherein the resin provides tack that allows a previously laid section of the at least one filament band to maintain the angle in which the at least one filament band was placed on the mandrel and prevent the previously laid section of the at least one filament band from conforming to a new angle of the filament band when the angle is abruptly changed; and

applying multiple layers of the at least one filament band in differing orientations, at different locations, and in varying numbers of layers across the length of the mandrel during a single winding process; wherein the differing orientations, different locations, and varying numbers of layers are selected based upon determined load requirements for the component.

Claim 10 (previously presented): The process, as recited in claim 9, wherein the at least one filament band is wound into a plurality of layers having at least three different filament band orientations.

Claim 11 (original): The process, as recited in claim 9, further comprising cutting the pre-form from the composite material.

Claim 12 (original): The process, as recited in claim 11, further comprising curing the pre-form on a shape defining form.

Claim 13 (original): The process, as recited in claim 9, wherein a plurality of performs are simultaneously wound.

Claim 14 (original): The process, as recited in claim 9, wherein the pre-form is wound in a sheet of composite material.

Claim 15 (currently amended): A process for manufacturing a composite material comprising:

providing a rotating mandrel having a length;

providing a filament application section operatively associated with the mandrel;

associating one or more filament bands with the filament application section for winding on the rotating mandrel;

impregnating the one or more filament bands with a resin that is solid or semi-solid at ambient temperatures;

rotating the mandrel at a user-selectable rate to draw at least one impregnated filament band from the filament application section; and

moving at least one of the mandrel and the filament application section relative to the other to cause the filament winding section to move along the length of the mandrel thereby winding at least one filament band onto the mandrel; wherein the relative movement of the mandrel and the filament application section proceeds in successive winding passes to form a composite material; wherein each successive winding pass consists of relative movement between the mandrel and the filament application section in alternating first and second opposing directions; [[and]] wherein the user-selectable rate of the rotating mandrel and the relative movement between the mandrel and the filament application section along the length of the mandrel are coordinated to wind the at least one filament band onto the mandrel at least at two distinct, user-defined winding angles within at least one of the winding passes; wherein the at least one filament band includes at least one strait section without crimping sections that is at least three times longer than the width of the at least one filament band; wherein the at least one filament band is laid out on the mandrel at a first angle during an initial winding pass, is changed to a second angle during at least one central winding pass, and is returned back to the first angle during a subsequent winding pass; and wherein the resin provides tack that allows a previously laid section of the at least one filament band to maintain the angle in which the at least one filament band was placed on the mandrel and prevent the previously laid section of the at least one filament band from conforming to a new angle of the filament band when the angle is abruptly changed; and

applying multiple layers of the composite material in differing orientations, at different locations, and in varying numbers of layers across the length of the mandrel during a single winding process; wherein the differing orientations, different locations, and varying numbers of layers are selected based upon determined load requirements for the composite material.

Claim 16 (previously presented): The process, as recited in claim 15, wherein the filament application section comprises filament winding head, and wherein the filament winding head, the rotation of the mandrel, and the relative movement of the mandrel and the filament winding section along the length of the mandrel cooperatively control the angle at which the at least one filament band is applied to the mandrel.